COMM Lessons Learned

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While there were many successes in Operation Iraqi Freedom, and while our communications efforts were outstanding, there are some things we've learned ... things that need to be addressed as we continue to support the War on Terror.

Bandwidth Planning Tool

As we were building the communications architecture for OIF, we did not have a good technical approach to forecasting how much bandwidth we needed for each base. While the Air Force Communications Agency's network modeling folks gave us a good start, we had to make some educated guesses on how much secure and non-secure bandwidth to lay into each base.

We started by looking at the amount of bandwidth installed at bases during previous combat operations, such as Operation Enduring Freedom and Operation Allied Force. We also looked at the types of missions that would be bedded down at each base recognizing that strike aircraft needed more bandwidth than tankers and C-130s. Strike aircraft needed more SIPRNET and JWICS bandwidth for mission planning and then battle damage video transmission after the missions were completed.

Total Force Teaming

We used active duty and Air National Guard combat comm squadrons to open up our new bases. We used active duty Theater Deployed Communications units to augment existing bases that were expanded for the war. We used Air Mobility Command units to support tanker and cargo bases. And, we used Air National Guard Engineering and Installation forces to help activate and expand communications infrastructure at new bases and existing bases. Planning helped ensure early access to ANG forces because we prepared their mobilization orders in advance, and many people were actually working in their units as the orders were processed. We also integrated Air Force Special Operations Forces communications packages into Air Force host base communications units, where possible, but always ensured the Air Force Special Operations Command comm forces could be pulled out and deployed forward to other bases without disrupting communications services.

Commercial SATCOM

Commercial SATCOM is a must in today's combat environment. The Defense Satellite Communications System can't provide sufficient bandwidth to relatively fixed, in place Air Force customers and continue to support the more mobile Army SATCOM requirements. This growing dependence on commercial SATCOM comes with risks. We must be able to plan our commercial SATCOM use early enough to initiate leases that lock up Air Force usage, otherwise we will find ourselves in a bidding war with CNN trying to obtain the last of available bandwidth.

We must also remember that commercial SATCOM does not have any anti-jam capability. Our growing reliance means our tactical communications units must practice their circuit/service activation skills. Training with commercial SATCOM is more expensive than using the "free" DSCS system, but it must be done. Combat operations are not successful if we take 30 days to activate commercial SATCOM services.

Investing in Radios

Our Air Force needs to get serious about investing in narrowband Demand Access/Demand Assigned UHF TACSAT capability. Even though it's been years since the Joint Staff directed the Services to migrate to DAMA radios, the Air Force has never prioritized its needs high enough to get funded. This lack of DAMA capability had a direct impact on the Air Force's ability to prosecute OIF. During OIF, we flew three simultaneous JSTAR missions but only had one UHF TACSAT channel to push the Moving Target Indicator dots off the aircraft. This meant the other two aircraft could not pass their data back to the PSAB CAOC and the air battle managers in the back end of the JSTARS were forced to take on the targeting mission without having access to all the other intelligence feeds that are found in the CAOC. Also, the lack of DAMA radios in our Terminal Air Control Parties prevented them from having direct communications back to PSAB CAOC. This had a direct impact on their ability to call for additional firepower.

Better Aircraft Comm

Communication to aircraft needs to be greatly improved. Gen. Michael Moseley said OIF showed us that "Our Air Force has advanced into the digital age; however, communications to our aircraft is stuck in the analog world." One of mantras of the Chief of Staff Gen. John Jumper is that we need to advance to machine-to-machine communications. Nowhere is this need more evident than with our current generation fighter aircraft. Most are either equipped with Joint Tactical Information Distribution System or Situational Awareness Data Information Link to share information across the net, but we don't have much of a capability to extend the net beyond line-of-sight. This is because the fighter aircraft don't have SATCOM, and we don't have airborne communications relays. Instead, we had to use ultra-high frequency TACSAT voice nets to relay information from the CAOC through AWACS and JSTARS aircraft to the strike aircraft. Why would the CAOC want to be able to talk directly with fighter aircraft? To be able to redirect or retarget them to hit time sensitive targets that pop up such as Saddam Hussein. The only exception is when we could use a UHF TACSAT data channel to specially equipped bombers, but it had its problems. During the first few days of OIF, the CAOC could not communicate with strike aircraft operating over northern Iraq because the AWACS and JSTARS aircraft were operating in southern Iraq and could not communicate via line-of-sight UHF radios with the northern aircraft. We need the ability to extend comm to fighter aircraft operating anywhere in the combat theater.

Coalition Interoperability

Coalition interoperability was a good news/bad news story. The good news is we had unprecedented ability to share releasable information with our allies by using various versions of Central Exchange of Intelligence Information networks. Each CENTRIX was driven by the allies on the network. Foreign disclosure rules drove what information could be shared with each ally, so we grouped our allies with similar foreign disclosure rule sets. During OEF we used a Community of Interest Network to share information with Saudi Arabia. During OIF, we used three separate CENTRIX networks to share our releasable [intelligence] with our allies. The bad news is that while CENTRIX allowed us to share products, it did not allow our allies to participate in the processes used to develop the products because our allies are not allowed access to SIPRNET. However, an outstanding team developed a system that allowed members of the Royal Air Force to operate the most critical command and control systems even though they resided on SIPRNET. This "reverse firewall" prevented these allies from accessing SIPRNET outside the CAOC, but did allow them to fill critical positions, such as the CAOC director, during the war. Never before have our allies had this kind of access to our SIPRNET-based systems. This small first step was an important breakthrough in coalition sharing and needs to be continued. We need a system that can be accredited for full-time use, and able to support classified e-mail and file sharing.

Tailored Comm Packages

We need to be able to provide tailored communications packages. Air Mobility Command began this effort under the direction of Brig. Gen. William Lord and now Air Combat Command is moving in the same direction under his continuing direction. However, as of January we only had two types of communications packages we could deploy: a basic Theater Deployable Communications package that could support 1,500 customers, or a suitcase INMARSAT Fly Away Kit that could support one person.

We needed something in between and by mid-March a team developed a SLICE package that could provide eight NIPRNET drops eight SIPRNET drops, and eight DSN lines. These were called SLICE packages because they took a small slice of TDC equipment and married it up with a small Ku-band commercial SATCOM terminal to provide first-in communications at the bases we opened up inside Iraq. The communications equipment for this package could fit on one pallet. At one location, the equipment was rolled off a C-130 at 6 a.m. and was fully operational in 12 hours. We need to formalize this capability and make these essential unit training codes for war planners to use as first-in communications packages at a bare base or as communications packages for small special-purpose teams such as embassy plus-up teams.

Supporting the Tools

We have to get smarter on how to provide network support and system administration to collaborative tools such as the Information WorkSpace, Automated Deep Operations Coordination System, and Microsoft Internet Relay Chat.

I would never have guessed before the war how important these systems became in shortening the time-sensitive targeting kill chain.

They allowed Air Force, Navy and Army targeteers to immediately coordinate between themselves to determine the best approach to kill a target and deconflict potential fratricide possibilities.

Unfortunately, we had no military personnel and very few contractors who could keep these critical systems operational.

When we had problems with IWS performance, we had almost nobody to turn to for advanced trouble shooting assistance and those who tried to help us were unsuccessful. Daily system reboots became the only way we could ensure IWS worked throughout the 24-hour per day combat cycle.

We have to get better at supporting these systems.